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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/910,448      | 07/20/2001  | Mykolas Baranauskas  | 51179               | 2771             |

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[REDACTED] EXAMINER

WONG, EDNA

| ART UNIT | PAPER NUMBER |
|----------|--------------|
| 1753     |              |

DATE MAILED: 01/29/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                 |                      |
|------------------------------|-----------------|----------------------|
| <b>Office Action Summary</b> | Application No. | Applicant(s)         |
|                              | 09/910,448      | BARANAUSKAS, MYKOLAS |
| Examiner                     | Art Unit        |                      |
| Edna Wong                    | 1753            |                      |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) 20-26 is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-19 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
  - a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

#### Attachment(s)

|  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

***Election/Restrictions***

Applicant's election with traverse of Group I, claims **1-19**, in Paper No. 6 is acknowledged. The traversal is on the ground(s) that a disclosure of a process necessarily will result in the disclosure of the article made by the process. Thus, the Examiner, when searching the process claims, necessarily will be searching the subject matter of claims 20-26. This is not found persuasive because the process and products are both open to contain other elements that are not required for each other. Thus, searching for one invention does not necessarily search the other.

Furthermore, searching metal plating methods and methods of treating a substrate would not necessarily require searching articles made by such a process because the invention defined in a product by process claim is a product, not a process. *In re Bridgeford* 679, 149 USPQ 55 (CCPA 1966).

The requirement is still deemed proper and is therefore made FINAL.  
Accordingly, claims **20-26** are withdrawn from consideration as being directed to a non-elected invention.

***Specification***

The disclosure is objected to because of the following informalities:

page 3, line 24, "Pd./tin" should be amended to -- Pd/Sn --.

page 5, line 19, it is unclear what is meant by "an n air-agitated plating tank".

page 6, line 7, it is unclear what is meant by "and 3.8M and CrO<sub>3</sub>".

page 6, line 10, it is unclear what is meant by "KJO<sub>4</sub>".

page 6, line 18, "0.3 A/dm<sub>3</sub>" should be amended to -- 0.3 A/dm<sup>3</sup> --.

page 6, line 19, "3 A/dm<sub>3</sub>" should be amended to -- 3 A/dm<sup>3</sup> --.

page 7, line 13, it is unclear what is meant by "KJO<sub>4</sub>".

page 8, line 21, it is unclear what is meant by "for treated for 30 seconds".

page 9, line 22, "solution," should be amended to -- solution, --.

page 10, line 8, the word "now" should be amended to the word -- new --.

page 11, under control Example 1, it is unclear what is meant by "KJO<sub>4</sub>".

page 11, under Example 2, it is unclear what is meant by "KJO<sub>4</sub>".

page 11, under control Example 6, "CoF<sub>3</sub> - 0:01" should be amended to -- CoF<sub>3</sub> -

0:01 --.

Appropriate correction is required.

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

#### *Claim Objections*

Claim 4 is objected to because of the following informalities:

##### Claim 4

line 1, the word "trated" should be amended to the word -- treated --.

line 1, the word "woith" should be amended to the word -- with --.

Appropriate correction is required.

#### *Claim Rejections - 35 USC § 112*

- I. Claims 1-19 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for dielectric substrates, does not reasonably provide

enablement for semiconductor or metal substrates. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to carry out the invention commensurate in scope with these claims.

Applicants' discloses that the present invention pertains to modification of qualities of a dielectric surface (specification, page 1, lines 2-9) and the invention provides new methods for plating dielectric substrates, particularly polymer substrates such as e.g., ABS copolymer substrates, epoxy resin substrates, polyetherimide substrates, and the like (specification, page 3, lines 18-20).

However, claim 1, line 1, as presently written, recites "a substrate". The words "a substrate" reads on a semiconductor substrate and a metal substrate. Thus, the invention as presently claimed is not commensurate in scope with the disclosure of the specification.

II. Claims 3-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 3

lines 1-2, it appears that "a bismuth material" is the same as that recited in claim 1, lines 1-2. However, it is unclear if it is.

line 2, it appears that "a sulfur material" is the same as that recited in claim 1,

line 2. However, it is unclear if it is.

Claim 4

line 2, it appears that "a sulfide reagent" is further limiting the sulfur material recited in claim 1, line 2. However, it is unclear if it is. See also claim 5, lines 1-2.

Claim 6

line 1, "the sulfide" lacks antecedent.

line 1, it appears that "the sulfide" is further limiting the sulfur reagent recited in claim 4, line 2, and claim 5, line 1. However, it is unclear if it is.

Claim 11

line 2, it appears that "electrolytically plated with nickel" is further limiting the metal plating step recited in claim 1, line 2. However, it is unclear if it is.

Claim 12

line 2, it appears that "electrolytically plated with copper" is further limiting the metal plating step recited in claim 1, line 2. However, it is unclear if it is.

Claim 13

line 2, it appears that "electrolytically plated with gold" is further limiting the metal plating step recited in claim 1, line 2. However, it is unclear if it is.

Claim 19

lines 2-3, "the sulfide material" lacks antecedent basis.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 1, 3-6, 9-13, 15-16 and 18-19** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Duffy** (US Patent No. 3,620,834).

Duffy teaches a process for metal deposition, comprising the steps of:

- (a) treating a substrate (col. 1, line 38 to col. 2, line 30) with a Group VA material (= AsCl<sub>3</sub>, SbCl<sub>3</sub> and PCl<sub>3</sub>) [col. 2, lines 28-52];
- (b) treating the treated substrate with a sulfur material (col. 3, lines 10-21); and
- (c) metal plating the substrate (col. 3, lines 35-70).

The substrate is first treated with the Group VA material and then treated with the sulfur material (col. 2, lines 28-52; and col. 3, lines 10-21).

The substrate is treated with a sulfide reagent (= Na<sub>2</sub>S, K<sub>2</sub>S or Li<sub>2</sub>S) [col. 3, lines 10-21].

The sulfide reagent is an inorganic sulfide (= Na<sub>2</sub>S, K<sub>2</sub>S and Li<sub>2</sub>S) [col. 3, lines 10-21].

The sulfide is a sulfur salt (= Na<sub>2</sub>S, K<sub>2</sub>S and Li<sub>2</sub>S) [col. 3, lines 10-21].

The substrate is treated with a solution of the sulfur material (= a solution is employed) [col. 3, lines 10-21].

The sulfur solution is an aqueous sulfide solution (= sulfide-yielding compounds dissolved in a solvent such as water) [col. 3, lines 10-21].

The substrate is electrolytically plated with nickel (= Group VIIA) [col. 3, lines 36-59].

The substrate is electrolytically plated with copper (= Group IB) [col. 3, lines 36-59].

The substrate is electrolytically plated with gold (= Group IB) [col. 3, lines 36-59].

The substrate surface comprises a dielectric material (col. 1, line 38 to col. 2, line 30).

The substrate surface comprises ABS (col. 1, line 38 to col. 2, line 30).

The metal plate provides a decorative or protective function (col. 1, lines 5-24).

The substrate is treated with water after treatment with the Group VA material and before treatment with the sulfide material (= washing) [col. 2, line 73 to col. 3, line 9].

Duffy does not teach wherein the Group VA material is a bismuth material; and wherein the bismuth material is a trivalent bismuth material.

However, the invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made because one skilled in the art would have been motivated to have modified the process of Duffy with wherein the Group VA material is a bismuth material; and wherein the bismuth material is a trivalent bismuth material because Duffy teaches treating the substrate with a Group VA material (= AsCl<sub>3</sub>, SbCl<sub>3</sub> and PCl<sub>3</sub>) [col. 2, lines 28-52]. It appears that using bismuth trichloride (BiCl<sub>3</sub>) as the Group VA material would have been functionally equivalent would not have affected the overall process of Duffy because bismuth is a Group VA metal and similar metals or compounds can be expected to have similar properties, absent evidence to the contrary.

As to wherein the substrate is treated with a solution of the bismuth material, Duffy teaches that the AsCl<sub>3</sub>, SbCl<sub>3</sub> and PCl<sub>3</sub> are employed in the liquid phase or can be dissolved in a solvent (col. 2, lines 31-72). It appears that the bismuth material would have also been in a solution phase.

As to wherein the bismuth solution is an aqueous solution having a bismuth ion concentration of from about 0.005 to about 0.3M, the bismuth ion concentration is a result-effective variable and one skilled in the art has the skill to calculate the

concentration that would determine the success of the desired reaction to occur, e.g., producing a satisfactory surface for metal to bond to plastic, absent evidence to the contrary. MPEP § 2141.03 and § 2144.05(b).

As to wherein the substrate is treated with an etchant prior to treatment with the bismuth material, Duffy teaches that it is not necessary to subject the surface of the substrate to special treatment such as etching, polishing, and the like (col. 2, lines 57-64). However, the suggestion from this teaching is that it could have been done.

The disclosure of reference must be considered for what it fairly teaches one of ordinary skill in the art, pertinence of non-preferred disclosure must be reviewed in such light. *In re Meinhardt* 157 USPQ 270; and MPEP § 2123.

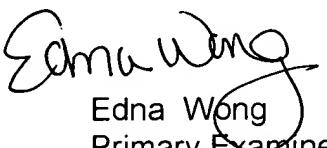
As to wherein the substrate is an electronic packaging substrate, Duffy teaches an ABS substrate (col. 2, lines 15-22). It appears that an ABS substrate is an electronic packaging substrate, absent evidence to the contrary.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edna Wong whose telephone number is (703) 308-3818. The examiner can normally be reached on Mon-Fri 7:30 am to 5:00 pm, alt. Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Nam Nguyen can be reached on (703) 308-3322. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 873-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1495.



Edna Wong  
Primary Examiner  
Art Unit 1753

EW  
January 28, 2003